WHAT IS CLAIMED IS:

1. An information recording medium at least comprising:

a substrate having a microscopic pattern, which is constituted by a shape of continuous substance of approximately parallel grooves formed with a groove section and a land section alternately;

a recording layer formed on the microscopic pattern; and

a light transmission layer formed on the recording layer,

the information recording layer is characterized in that the microscopic pattern is formed so as to satisfy a relation of $P < \lambda <$ NA and a thickness of the light transmission layer is within a range of 0.07 to 0.12 mm, wherein P is a pitch of the groove section or the land section, λ is a wavelength of reproducing light beam and NA is a numerical aperture of objective lens.

2. The information recording medium in accordance with claim 1, wherein a record based on at least one of reflectivity difference and phase difference is performed onto either one of the groove section and the land section.

3. The information recording medium in accordance with claim 1, wherein the wavelength λ is within a range of 350 to 450 nm and the numerical aperture NA is within a range of 0.75 to 0.9.

4. The information recording medium in accordance with claim 2, wherein recording in accordance with at least one of the reflectivity difference and the phase difference is performed so as

for the modulated amplitude to be more than 0.4.

5. The information recording medium in accordance with claim 2, wherein recording in accordance with at least one of the reflectivity difference and the phase difference is performed so as for the reflectivity to be more than 5 %.

6. The information recording medium in accordance with claim 1, wherein the recording layer is formed by a phase change material.

7. A reproducing apparatus for reproducing an information recording medium at least comprising:

a substrate having a microscopic pattern, which is constituted by a shape of continuous substance of approximately parallel grooves formed with a groove section and a land section alternately;

a recording layer formed on the microscopic pattern; and

a light transmission layer formed on the recording layer,

wherein the information recording layer is characterized in that the microscopic pattern is formed so as to satisfy a relation of $P < \lambda < NA$ and a thickness of the light transmission layer is within a range of 0.07 to 0.12 mm, and wherein P is a pitch of the groove section or the land section, λ is a wavelength of reproducing light beam and NA is a numerical aperture of objective lens,

the reproducing apparatus comprising:

a pickup composed of a light emitting element having a wavelength of λ within a range of 350 to 450 nm and an objective

lens having a numerical aperture of NA within a range of 0.75 to 0.9 for reading out reflected light from the information recording medium;

a motor for rotating the information recording medium;

servo means for controlling to drive the pickup and the motor;

a turntable for supporting the information recording medium while rotating;

demodulator means for demodulating an information signal read out by the pickup;

interface (I/F) means for transmitting a signal demodulated by the demodulator externally; and

controlling means for controlling the reproducing apparatus totally.

8. The reproducing apparatus in accordance with claim 7, the recording apparatus further comprising an auxiliary information demodulator for demodulating a differential signal outputted from the pickup.

9. A recording apparatus for recording an original information signal on an information recording medium at least comprising:

a substrate having a microscopic pattern, which is constituted by a shape of continuous substance of approximately parallel grooves formed with a groove section and a land section alternately;

a recording layer formed on the microscopic pattern; and

a light transmission layer formed on the recording layer,

wherein the information recording layer is characterized in that the microscopic pattern is formed so as to satisfy a relation of $P < \lambda < NA$ and a thickness of the light transmission layer is within a range of 0.07 to 0.12 mm, and wherein P is a pitch of the groove section or the land section, λ is a wavelength of reproducing light beam and NA is a numerical aperture of objective lens,

the recording apparatus comprising:

a pickup composed of a light emitting element having a wavelength of λ within a range of 350 to 450 nm and an objective lens having a numerical aperture of NA within a range of 0.75 to 0.9 for reading out reflected light from and recording on the information recording medium;

a motor for rotating the information recording medium;

servo means for controlling to drive the pickup and the motor;

a turntable for supporting the information recording medium while rotating;

interface (I/F) means for receiving the original information signal to be recorded;

modulator means for modulating the original information signal;

waveform converter means for converting the original information signal into a format suitable for a recording characteristic of the recording layer of the information recording medium;

auxiliary information demodulator means for demodulating a differential signal outputted from the pickup; and

controlling means for controlling the recording apparatus

totally.